National Aeronautics and Space Administration
NASA Marshall Star : June 16, 2005 : Vol. 45/No. 38

MARSHALL STAR

Serving the Marshall Space Flight Center Community June 16, 2005

Discovery and New Frontiers Office at Marshall

Jupiter mission proceeds to next phase

From Combined Reports

A NASA mission to fly to Jupiter will proceed to a preliminary design phase. The mission, called Juno, is the second in NASA's New Frontiers Program.

Located at the Marshall Center, the Discovery and New Frontiers Program Office provides opportunities for the science community to propose full scientific investigations to explore the solar system.

Juno uses a solar powered, spinning spacecraft in a unique polar orbit around the solar system's largest planet. The polar orbit samples the entire planet's surface, including the poles, employing a combination of in situ – also known as on-site – and remote-sensing science instruments. It carries a large complement of precise instruments, including gravitational science systems, radiometers and magnetometers.

"We're looking forward to supporting this mission as it moves forward into implementation," said Todd May, manager of NASA's Discovery and New Frontiers Program Office at Marshall Center. "As the archetype giant gas planet, Jupiter can

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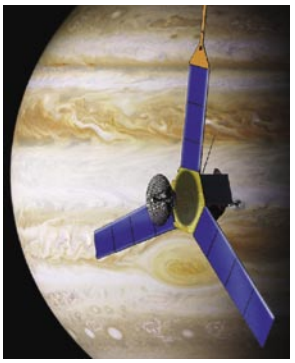

Photo by NASA/Jet Propulsion Laboratory

Artist's concept of Juno, a mission to Jupiter

Crew preparing Space Station for new cargo arrival

By Lori Johnston

Aboard the International Space Station, the Expedition 11 crew is spending the latter part of its second month in space preparing for the arrival of new cargo.

Cosmonaut Sergei Krikalev and astronaut John Phillips conducted scientific research last week, while troubleshooting the station's oxygen generator, and stowing trash and other unneeded items into the Progress supply spacecraft for disposal this week.

Last week, the Station passed over the Gulf of Mexico offering flight controllers an opportunity to capture video of Arlene, the Atlantic hurricane season's first tropical storm, as it tracked northward toward the

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Photo by NASA/KSC

Space Shuttle Discovery is positioned June 7 for remating to its new propulsion stack, External Tank 121 and the Solid Rocket Boosters, in the high bay 3 of the Vehicle Assembly Building at Kennedy Space Center, Fla.

NASA's Space Shuttle Discovery rolls to launch pad

By Lynnette Madison

Space Shuttle Discovery had a new, upgraded External Tank when it rolled out Wednesday to Launch Pad 39B at NASA's Kennedy Space Center, Fla. Discovery was mated with its new External Tank on June 7 in the Vehicle Assembly Building at Kennedy Space Center.

The new tank, External Tank-121, originally was planned to fly with Atlantis on the second Return to Flight mission, STS-121. Managers made the decision to change tanks when Discovery was rolled back to the Vehicle Assembly Building last month. A decision will be made next week as to which External Tank, ET-120 or 119, will be used for STS-121.

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NASA TV going digital; Marshall leads the way

By Jack Robertson

Significant changes and substantial improvements are on the horizon for NASA TV – the broadcast service that brings NASA news, programming and live events to the world.

Beginning July 1, NASA TV will convert from a single broadcast channel to a four-channel digital format. NASA TV's picture quality will improve and the service will include a public channel, a channel for education-related activities, a news media channel and one dedicated to internal use for mission operations.

Grubbs

"The Marshall Center is the lead center for NASA'S transition to digital TV, and we played a major role in designing and implementing the entire architecture for this system," said Rodney Grubbs, DTV program manager in Marshall's Office of Chief Information Officer. "I'm proud we've been a part of making television history."

Grubbs, who is chairman of NASA's Digital TV Working Group and has led the effort to bring digital TV technology to all NASA Centers, added, "This changes forever the way NASA does television. It will be less cumbersome, cheaper and more efficient. We can program a public channel that is more interesting to watch and not interrupted with education, media or mission events. NASA TV will have a different look and should be less confusing for the average viewer," Grubbs said.

The major change will be the way the broadcast signal is received. A digital integrated receiver decoder will be required and NASA has informed news media, educational institutions and museums about the changes.

"This is a major milestone for NASA Television," said Dean Acosta, acting assistant administrator for NASA's Office of Public Affairs in Washington. "The move to contemporary digital technology will allow us to better serve the public and broadcast media with improved imagery and better products specifically targeted for their use."

FCC defines digital

The Federal Communications Commission describes digital TV, or DTV, as technology to offer television with movie-quality picture and CD-quality sound, along with a variety of other enhancements. The technology also can be used to transmit large amounts of other data which may be accessible by a computer or television set.

Of the four new channels, NASA Public Service will be the most visible to average TV viewers. It will feature documentaries, archival programming and coverage of NASA missions and events.

NASA Education Services will be dedicated to providing educational programming to schools, educational institutions and museums.

NASA Media Services, a channel specifically for news media, will require broadcasters to use addressable, store-and-forward-capable, integrated receiver decoders. They will store "pushed" content – such as NASA'S daily video files that include footage and interviews – for retrieval and playback at their convenience, eliminating the need for monitoring of and rolling record tapes for NASA feeds. This also will provide customization and better control of live, interactive satellite interviews.

NASA Mission Operations will be an internal-only channel, used primarily for routine mission activities.

Analog service

NASA TV's current analog service will remain available through late June. The new digital NASA TV channels will be on satellite AMC 6, transponder 17.

"We don't expect any problems from major cable companies who currently receive and provide NASA TV," Grubbs said. "However, if the cable company isn't equipped to take digital signals there could be an interruption in the service."

The national DTV transition began May 1, 1999, when ABC, CBS, FOX and NBC affiliates in each of the top 10 television markets began airing programs on digital television channels. Other stations in various-sized cities have gradually joined the digital age of TV and all U.S. stations should be broadcasting in DTV by Dec. 31, 2006.

The writer, an ASRI employee, supports the Public and Employee Communications Office.

NASA Television covers Progress docking to Station

When a fresh shipment of supplies arrives at the International Space Station, NASA TV will broadcast it live. Coverage begins at 6 p.m. CDT, Saturday, June 18.

The automated Progress spacecraft, the 18th to visit the Space Station, will carry more than two tons of supplies for the Station's crew, Expedition 11 Commander Sergei Krikalev and NASA Science Officer John Phillips. The cargo includes a six-month supply of food, spare parts, water and oxygen. The Progress will also bring camera gear that Station crews may use to inspect approaching Space Shuttles.

The Progress will launch at 6:09 p.m. CDT, June 16 from the Baikonur Cosmodrome in Kazakhstan. It's a two-day journey to the Station. The Progress is scheduled to link up to the aft port of the Zvezda Service Module at about 7:46 p.m. CDT, June 18.

There is no live TV coverage of the Progress launch, but NASA will issue a status report once the spacecraft reaches orbit.

For NASA TV information and schedules on the Internet, visit: http://www.nasa.gov/ntv

NASA Implementation Plan for Space Shuttle available

The latest version of "NASA's Implementation Plan for Space Shuttle Return to Flight and Beyond" is now available online at: http://www.nasa.gov/returntoflight

The 10th Edition updates activities completed over the last few months in preparation for the Space Shuttle Return to Flight mission, STS-114.

Activities included changing the launch planning window from May to July and adding a new heater on the Shuttle's external fuel tank.

Marshall's Jeffery Kolodzierjczak receives Oberth Award from AIAA

The American Institute of Aeronautics and Astronautics Alabama-Mississippi Section recently presented the Hermann Oberth Award to Dr. Jeffery J. Kolodzierjczak, chief scientist for Gravity Probe-B at the Marshall Center.

The Oberth award is presented for outstanding individual scientific achievement in astronautics and the space sciences or for the promotion and advancement of the aeronautical sciences.

Kolodzierjczak has led the efforts of Marshall's Gravity Probe-B Science team in achieving the pioneering Gravity Probe-B science goals of measuring frame dragging for the first time and measuring the geodetic effect to new levels of accuracy.

Kolodzierjczak

As chief scientist, he analyzed the Hubble Space Telescope observations of the Gravity Probe-B guide star, analyzed Gravity Probe-B proton monitor data, and analyzed ion scattering.

NASA scientists receive Presidential Award

NASA news release

Two NASA scientists received the Presidential Early Career Awards for Scientists and Engineers (PECASE) Monday at a White House ceremony.

The PECASE, established in 1996, represents the highest honor bestowed by the U.S. government on scientists and engineers beginning their independent careers. The awards honor the nation's most promising young researchers within their fields, and recognize recipients' exceptional potential for leadership at the frontiers of scientific knowledge. A PECASE is awarded to an individual only once during his or her career.

NASA recipients are:

• David Alexander, Associate Professor of Astrophysics, Rice University, Houston

• Michael G. Bosilovich, Meteorologist, NASA Goddard Space Flight Center, Greenbelt, Md.

The PECASE awards were created to foster innovative and far- reaching developments in science and technology; increase awareness of careers in science and engineering; give recognition to the scientific missions of participating agencies; enhance connections between fundamental research and national goals; and highlight the importance of science and technology for the nation's future.

Obituary

Charles Roland Baugher II, 63, of Huntsville, died June 9.

Mr. Baugher was manager of the Research Planning and Integration Office at the Marshall Center.

He joined the Marshall Center as a research scientist in 1963.

Survivors include his wife, Patty Baugher; two daughters, Natasha Bencs of Birmingham and Paige Baugher of Austin, Texas; and a sister, Rosalind Miller of Atlanta.

Juno

Continued from page 1

tell us more about the origin of planets in our solar system than any other."

"We are excited at the prospect of the new scientific understanding and discoveries by Juno in our continued exploration of the outer reaches of our solar system during the next decade," said Dr. Ghassem Asrar, deputy associate administrator for NASA's Science Mission Directorate.

At the end of the preliminary design study, the mission must pass a confirmation review that will address significant schedule, technical and cost risks before being confirmed for the development phase.

Dr. Scott Bolton of Southwest Research Institute, Boulder, Colo., is the Principal Investigator. NASA's Jet Propulsion Laboratory, Pasadena, Calif., will provide mission project management. Lockheed Martin Space Systems in Denver will build the spacecraft.

Discovery and New Frontiers investigations are the responsibility of NASA Headquarters in Washington. The Marshall program office assists the Science Mission Directorate at NASA Headquarters with program management, technology planning, systems assessment, flight assurance and public outreach.

The first NASA New Frontiers mission will fly by the Pluto-Charon system in 2014 and then target another Kuiper asteroid belt object.

Marshall Association scholarship applications due June 20

The deadline for submitting this year's Marshall Association college scholarship applications is June 20. The Association will award two scholarships to dependants of Marshall civil service employees or retirees in August. One scholarship is targeted for students pursuing technical degrees in fields such as science, engineering, or mathematics. The other scholarship covers non-technical fields such as business, education, or other areas. Applicants must be entering their freshman year of college this fall. The Association will accept applications through 4 p.m. June 20. Contact Tom Fleming at 544-3962 for more information.

New traffic signal operating

A new traffic signal is now operational near the entrance to Gate 9, Rideout Road. This signal controls traffic entering the new Redstone Arsenal Visitor Center and vehicle inspection station. Military Police are now issuing citations for violations at this location.

Associate Director Henderson speaks

Procurement Office holds annual celebration, presents employee awards

The Office of Procurement held its annual awards celebration recently. Its theme for the celebration was "Bicentennial Celebration." Marshall Center Associate Director Robin Henderson spoke at the event.

Among this year's winners were Harry Craig, who was named "Contract Manager of the Year," and Steve Spearman, named "Contracting Officer's Technical Representative of the Year."

Awards were presented to employees by Steve Beale, director of the Office of Procurement.

Photo by Emmett L. Given/ Marshall Center

Steve Spearman

Photo by Emmett L. Given/ Marshall Center

Harry Craig

ISS

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U.S. Gulf Coast.

Phillips put on his customized cycling tights for his second session of the Foot/ Ground Reaction Forces during Spaceflight, or FOOT experiment. FOOT investigates the differences between use of the body's lower extremities on Earth and in space, and changes in the musculoskeletal system during spaceflight.

Phillips wore the instrumented Lower Extremity Monitoring Suit, which measured his joint angles, muscle activity and forces on the feet during a typical day on the Station. FOOT could help explain the reasons for bone and muscle loss during spaceflight and aid in the design of exercise countermeasures. This experiment also has significance for understanding, preventing and treating osteoporosis on Earth.

Focused human physiological and biological Space Station research on astronaut health and the development of countermeasures to protect crews from the space environment will allow for long duration missions to explore beyond low Earth orbit. NASA's payload operations team at the Marshall Center coordinates U.S. science activities on Space Station.

Early this week, the crew wrapped up stowage of trash and unneeded equipment in the Progress docked to the Station, prior to its undocking Wednesday. The Progress departure cleared the docking port on the aft end of the Zvezda module for the arrival of the next supply craft. The next Progress is scheduled to launch June 16 and dock the evening of June 18. NASA TV will cover the arrival live. This will be the 18th Progress to dock with the Station.

The writer, an ASRI employee, supports the Public and Employee Communications Office.

NASA selects contractors for Crew Exploration Vehicle work

NASA news release

NASA this week announced the selection of Lockheed Martin Corp. and the team of Northrop Grumman Corp. and The Boeing Co. that will lead to an award to build the agency's Crew Exploration Vehicle (CEV). The selection is part of NASA's plan to have two contractors compete in the design and production process for the Space Shuttle's replacement.

NASA's Vision for Space Exploration calls for the CEV to carry up to six astronauts beyond low-Earth orbit soon after the Space Shuttle is retired in 2010, and then on to the moon as early as 2015.

The CEV acquisition strategy is a multi-phased project. Phase 1 called for industry to mature their crewed vehicle designs and demonstrate their ability to manage the cost, schedule, and risk of human-rated spacecraft development.

Phase 2, covering final CEV design and production, was scheduled to start with a down-selection to a single industry team in 2008. To reduce or eliminate the gap between the Shuttle's retirement in 2010 and an operational CEV, the Phase 2 down-selection is planned for 2006.

Results of NASA Administrator Michael Griffin's Exploration Systems Architectural Study will be incorporated into a Call For Improvements later this year to invite Phase 2 proposals from the Phase 1 contractors.

NASA e-Payroll Awards Ceremony is June 28

The NASA e-Payroll Awards Ceremony will be held at 10 a.m. on June 28 in the Intergraph Bldg. 800 Auditorium. This ceremony will acknowledge the achievements and exceptional contributions of individuals who participated in the implementation of the Agency's e-Payroll project. Since there is limited parking at Building 800, employees are encouraged to carpool.

Discovery

Continued from page 1

One major change to Discovery's new External Tank is the addition of a heater on the liquid oxygen feedline bellows that will prevent ice forming during fueling and launch. The bellows is a joint on the outside of the tank, not insulated with foam, to allow expansion, contraction and movement during fueling of super-cold liquid oxygen before launch. The line feeds oxygen to the Shuttle's main engines at start-up and throughout the eight-and-a-half-minute climb to orbit.

Another change made to the tank is its hydrogen diffuser. A diffuser is a fabricated tube consisting of a core and screen assembly. It diverts the flow into radial jets that are dispersed by the wire screen of the diffuser. There are two diffusers, one at the top of the hydrogen tank and the other at the top of the oxygen tank. Discovery's new External Tank uses a certified plain, two-wire weave. ET-120 had a tighter woven mesh than was expected.

The data review showed the out-of-specification diffuser may have been the contributing cause of a liquid hydrogen pressurization problem. During the tanking tests, a mechanism that pressurizes the tank cycled 13 times, versus the standard eight to nine times.

After several weeks of evaluating information gained from two previous tanking tests performed on ET-120, Discovery's original tank, program managers decided not to do another test prior to Discovery's launch.

The fully-assembled Space Shuttle vehicle, or stack – consisting of the orbiter, External Tank and twin Solid Rocket Boosters – will be mounted on the Mobile Launcher Platform and delivered to the pad via a Crawler Transporter. The four-mile journey from the Vehicle Assembly Building to the pad will take about six hours.

Last week technicians completed work on resupply stowage rack fasteners inside the Multi-Purpose Logistics Module Raffaello. The hatch was closed for flight Monday.
Last week technicians completed work on resupply stowage rack fasteners inside the Multi-Purpose Logistics Module Raffaello. The hatch was closed for flight Monday, June 6. Raffaello was installed in the Payload Transportation Canister June 9 in the Space Station Processing Facility and rotated to the vertical position over the weekend of June 11. The payloads were transferred to Launch Pad 39B on June 13.

Work on Space Shuttle Atlantis continues. Power-up system testing is 95 percent complete on Atlantis. Forward, mid-body and aft-area closeouts continue. Atlantis is scheduled to be rolled from the processing facility to the Vehicle Assembly Building in mid-July.

Technicians continue to bond Thermal Protection System tiles to Atlantis and work on the Rudder Speed Brake is complete. The 14-month process included removing, inspecting and reinstalling the four Rudder Speed Brake actuators and panels, and the Thermal Protection System blankets. While the panels were removed, they were bead blasted and painted for additional corrosion control.

Technicians began cleaning the payload bay on Atlantis in preparation for final door closing June 14. The landing gear functional test is scheduled for next week.

Launch of Discovery on its Return to Flight mission, designated STS-114, is targeted for July 13 with a launch window that extends to July 31. During its 12-day mission, Discovery's seven-person crew will test new hardware and techniques to improve Shuttle safety, as well as deliver supplies to the International Space Station.

Discovery's launch date will be selected after the Flight Readiness Review June 29-30.

The writer, an ASRI employee, supports the Public and Employee Communications Office.

Classified Ads

Miscellaneous

Pioneer CT-980W dual cassette deck, $20; Sony CDP-297 CD player, $20. 655-6293

Recliner chair, brown vinyl, $35; Oak tv stand, $10. 534-7913

Rattan wicker pedestal square rounded-corner glass top table w/4 chairs, blush, make offer. 772-7262

Pennsylvania House video cabinet, Cherry, holds up to 30" tv, vcr/dvd, $750. 931-427-2059

Yorkie pup, CKC, female, 2.5 lbs., 13-weeks old, black/brown, 1st vet visit. $800. 653-9518

Kenmore dryer, $100. 837-6649

1989 KDX 200, $950 firm; riding lawn mower, 18HP, needs carburetor work, $300. 348-4899

Cherry dining table w/4 chairs, $300; wood desk table, $75. 520-1400

Wedding dress/veil, size 8, $125; computer desk, $100. scooter, new, $200. 776-9165

Diamond solitaire ring, $75; diamond cluster heart-shaped ring, $100. 683-1279

Table w/chairs, dark oak finish, $50. 722-2146

Computer desk, 3x6, black, $80. 509-2536/Charlie

Luggage, 4-piece set, Protocol, floral pattern, $60; Two twin cotton futon mattresses, $75 each. 520-3874

Mahogany L-shaped executive desk, 6', w/lateral file, 1-yr. old, $800. 256-426-9557

Dell 4600 computer DVD/CD burner, 2.6Ghz-P4, 512Gb-DDR, 4Gb-HD, FX5200, 19" monitor, $495. 655-1986

Wood table, 30x48, light color, $50. 656-9009

1986 Honda Civic CRS/Si service manual, $15. 883-2948

Futon, wood frame, burgundy, thick pad, $150; Futon, black, metal frame, medium pad, $100. 783-4850

Montegi rims, 16", black, 5-lug pattern, never driven, $360. 256-990-1842

Twelve antique decorator whiskey mirrors, $35 each. 922-9311

Maltese puppies, AKC/CKC, available soon, call to discuss price/deposits. 256-852-4387

Pearl snare drum w/case, sticks, pad, stand, key, lesson books, $150. 882-6449

Hybrid daylilies. 828-9651

Murray mulching mower, Tecumseh, 5HP; walk behind drop feeder; both for $60. 828-6213

Short S-10 camper shell, $125; Sunn Model-T guitar amp, $500; Marshal dual 50W power-amp, $250. 851-8085

Oak dining table w/6 chairs, $850; Oak hutch w/glass doors, $200; chain-link dog run, $450. 777-2027

Madam Alexander collectible dolls, Wizard of Oz, set of 6, $400. 533-9683

Power Wheels Sunn Jammer Barbie 2-seater jeep, $50; Power Wheels Harley Davidson motorcycle, $50. 214-0110

Living room sofa, coffee table, table lamp, $180. 256-353-7200

Baldwin spinet piano w/bench, $750; French horn, double, Holton w/case, $800; clarinet w/case, $350. 881-1478

1974 Corvette center caps and beauty rings, stored since 1975, $400. 420-8074

Toddler booster car seat, $20; boy's 16" bicycle, $20; 123 bicycle, $10. 256-722-8570

Canning jars w/rings, one-half pints, pints, quarts, one & 1/2 quarts, one gallon. 881-6040

Cherry Queen Anne living room tables w/matching inlay designs, $250. 880-3737

Bedroom suite, queen w/rails, dresser & chest, $100; camper shell for long-bed GMC truck, $200. 539-5570

19th Century hand hewn spinning wheel, $350. 489-3867

Flying King RC airplane w/flaps, 6-channel Futaba radio (21), ready to fly, $300. 828-4564

Vehicles

2002 Mitsubishi Diamante LS, 42k miles, silver, gray leather, loaded, $12,900. 337-2450

Kawasaki Mojave 4-wheeler, 150cc, kick-start, w/reverse, one-owner, $2,000. 256-586-7013

1999 BMW 328iC, white, gray leather, power-top, premium, sport & H-K, 5-speed, 85k miles, $18,500. 837-1035

1977 Procraft Fish-N-Ski, 116 Mercury, $1,500. 714-3769

2001 GMC/Yukon, 89.6k miles, V8/5.3L, 2WD, pewter, leather, loaded, one-owner, $17,000. 961-1055

1999 Toyota Corolla CE, 4-door, cd player, well maintained, $4,200. 931-247-4347

1998 BMW 740IL, hunter green, tan leather, 103k miles, new tires, $16,000. 682-0888

2005 Honda CRV SE, pewter pearl, leather, auto, AWD, 7k miles, 27mpg, $23,000. 256-431-0186

2000 Saturn SL1, auto, 46k miles, 35 mpg, $4,975 firm. 256-572-1867

2005 Ford Focus ZX3 SES, 3-door, 27k miles, 5-speed, 31mpg, $11,750. 256-732-3726

2003 Nissan Pathfinder, V6, auto, 2WD, tow package, 4-dr., 26k miles, cd, silver/charcoal leather, $22,500. 880-3337

2003 Honda CBR1100XX, 2.5k miles, extended warranty, $9,500. 256-325-1431

1994 Chevrolet Silverado extended cab, 3/4-ton, 350-engine, one-owner, all-power, 72k miles, $8,500. 852-5446/after 5 p.m.

2000 Nissan Frontier crew-cab, auto, all-power, am/fm/cd/cassette, silver, bedliner, 94k miles, $11,700. 880-9025

1996 Corsica, 87k miles, 6-cylinder, $2,100. 256-651-8200

1998 Buick LeSabre Limited sedan, 4-door, 35k miles, Grand touring package, leather, $7,500. 536-9524

1999 Chrysler Sebring coupe LXi, automatic, leather, sunroof, 90k miles, $6,000. 256-890-2120

1994 Mitsubishi Diamante SW, 4-door, auto, v6, leather, sunroof, 155k miles, $1,900. 348-7146

Wanted

Competitive racing bicycle, lightweight. 539-3166

Palm pilot M515 docking station for power (charging) and data sync to PC (USB). 652-5177

To buy: armoire, sofa, loveseat & chair. 256-527-8464/leave message

Microwave, good condition, reasonable price; bedroom-dresser w/mirror, reasonable price. 755-7262

Free

Rottweiller/Black Lab mix, 7-months old, male, all shots, friendly, outdoor dog. 256-394-2588

Beautiful Siamese cat, declawed, not fully grown. 890-0799

Male kitten, orange/white stripes, short hair, all shots; mother cat, spayed, all shots. 775-6584

To good home, 6-month old female Walker Hound. 577-4327

Puppy, mixed breed, brown/black, 8-weeks old, female, wormed, 6 weeks vaccinations. 828-9651

Kittens, black male, gray male, calico female, mother included. 232-7126

Dog, Blue Heeler mix, 2 yrs. old, all shots. 859-0729

Found

Two pair of glasses. Please call 544-3623 to claim/identify

2004 small date book w/numerous phone numbers. Call 544-3623 to claim/identify

MARSHALL STAR

Vol. 45/No. 38

Marshall Space Flight Center, Alabama 35812
(256) 544–0030
http://www.nasa.gov/centers/marshall

The Marshall Star is published every Thursday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Contributions should be submitted no later than 5 p.m. Friday to the Marshall Public and Employee Communications Office (CS20), Bldg. 4200, room 103. Submissions should be written legibly and include the originator's name. Send electronic mail submissions to: intercom@msfc.nasa.gov The Marshall Star does not publish commercial advertising of any kind.

Manager of Public and Employee Communications — Dom Amatore
Editors — Patricia Dedrick Lloyd, Debra Valine

U.S. Government Printing Office 2005-733-048-20003

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